

# ECR97 HEAT EXCHANGER KIT INSTRUCTIONS

ECR97 - 075 Kit #550002196    ECR97 - 100 Kit #550002197

## **⚠ WARNING**

Kit shall be installed by qualified service agency in accordance with manufacturer's instructions and all applicable codes and requirements of authority having jurisdiction. If information in these instructions is not followed exactly, a fire, explosion or production of carbon monoxide may result causing property damage, personal injury or loss of life. Qualified service agency is responsible for proper installation of this kit. Installation is not proper and complete until operation of appliance is checked as specified in manufacturer's instructions supplied with the kit.

## **⚠ CAUTION**

Shut "OFF" gas supply prior to disconnecting electrical power, before proceeding.

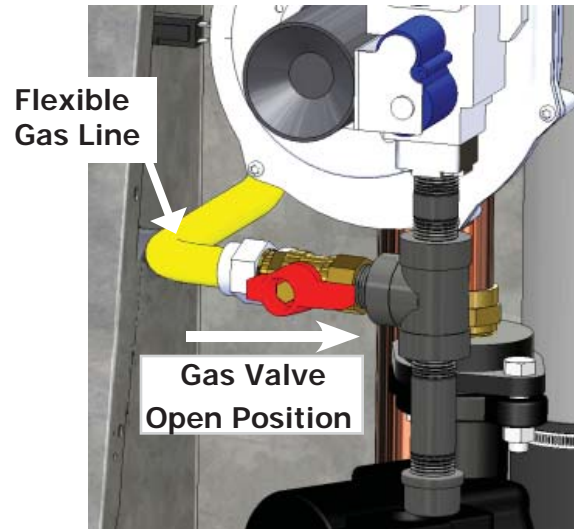
### Removal of existing heat exchanger:

1. Tools required:
  - (2) Crescent wrenches both at least 12"
  - Regular screwdriver
  - 1/4" drive ratchet
  - 7/16" deep well socket
  - Channel lock or spring hose clamp pliers
  - 3/8 nut driver or ratchet with extension
  - 11/32" nut driver
  - Small tube silicone
2. Follow instructions To Turn Off Gas to Appliance found on Operating Instructions label inside jacket or in Installation, Operation & Maintenance Manual. Verify all electrical power to boiler is turned off.
3. Turn OFF gas supply at manual main gas shutoff valve external to boiler.
4. Remove jacket from boiler. Grasp front cover at lip behind plastic smoke-colored control cover. Pull forward to release snap action latches. Lift jacket up and off bottom jacket rest.
5. Fold control panel down by first lifting up slightly to clear top tab from notch in jacket then fold down. Completely remove lower control panel by aligning bottom control panel hinge/tab with relief slot cut in jacket. Push panel inward to slide hinges out of slots then angle panel up and out of boiler. Disconnect wire harness connector from water temperature sensor on copper line next to boiler drain. See Figure 5.

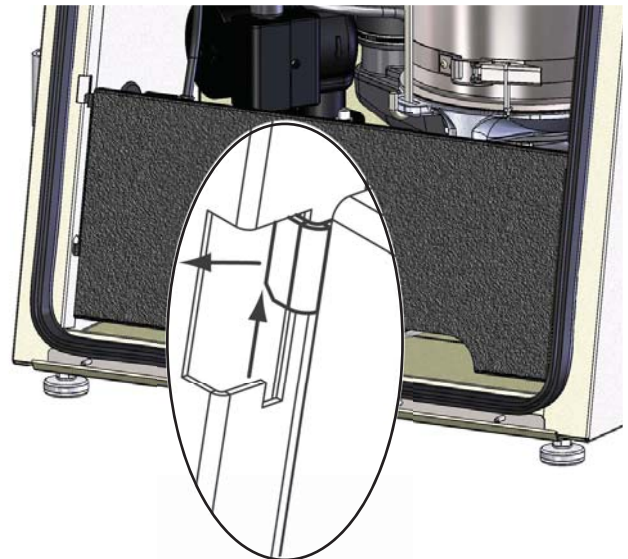
## **NOTICE**

Do not let panel hang by control wires. Support with wire tie or other suitable support from boiler cabinet.

**Figure 1 - Gas Shutoff Valve**



**Figure 2 - Internal Access Panel Closed with Latch**



ISO 9001-2008 Certified Company

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6. Visually inspect through sight glass to verify no flame is present.

### **⚠ WARNING**

Burn and scald hazard. Boiler may be hot. Allow boiler to cool sufficiently before servicing.

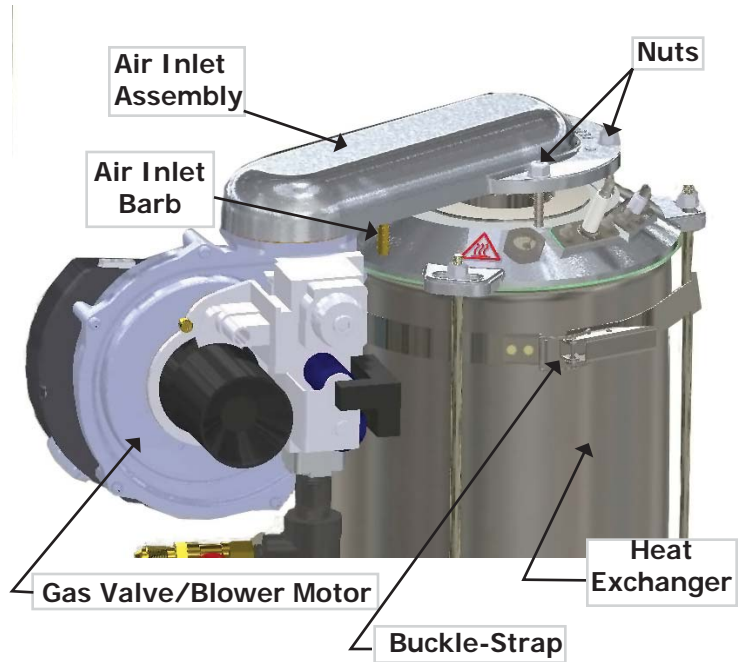
7. Isolate boiler from hydronic piping system. Drain water from boiler (boiler drain inside cabinet).
8. Loosen retaining screw and disconnect gas valve wire harness from gas valve.
9. Disconnect flexible gas line from gas shutoff valve.

### **NOTICE**

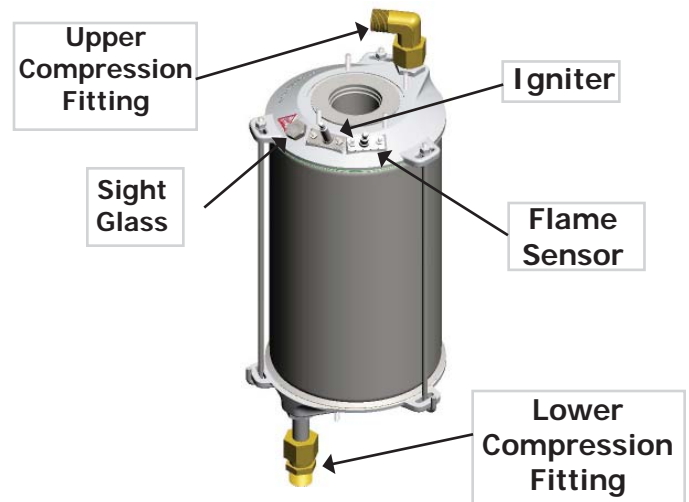
Use two (2) wrenches when loosening and tightening flexible gas line. Boiler's gas valve can be damaged if subjected to excessive torque.

10. Disconnect 2 wire harnesses from blower motor.
11. Disconnect (2) orange wires from pressure switch, if present. Set aside.
12. Remove pressure switch hose from air inlet barb fitting, if present.
13. Disconnect high voltage lead from igniter.
14. Remove blower motor and air/fuel inlet assembly. Support blower motor/air inlet. Use 1/4" drive ratchet with 7/16" socket to remove (4) nuts holding air inlet to heat exchanger. Lift blower motor/air inlet off studs. See Figure 2.
15. Disconnect condensate trap hose, and air pressure switch hose (if present), and temperature sensor wire harness connector from condensate collector. See Figure 5.
16. Use 3/8" nut driver or ratchet with extension and loosen upper hose clamp on hose attaching condensate collector to 2" flue pipe.
17. Disconnect upper and lower compression fittings on heat exchanger. See Figure 4.
18. Grab bottom half of lower compression fitting with one hand, position other hand on boiler drain and separate lower pipe by bending down and away. Lower return water pipe has a flexible section that allows it to be bent. Only bend as far as necessary to gain clearance for heat exchanger. See Figure 6.
19. Unfasten two (2) heat exchanger buckle-clamps and guide heat exchanger down to separate coupling from flue pipe while sliding tube out of upper compression fitting.
20. Separate condensate collector from heat exchanger by removing four (4) 1/4-20 hex nuts holding condensate collector to heat exchanger.

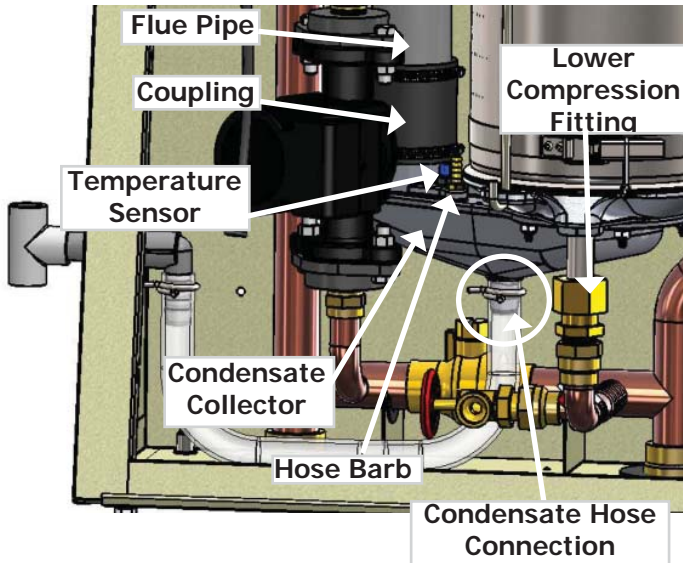
**Figure 3 - Blower Motor with Air Inlet Assembly**



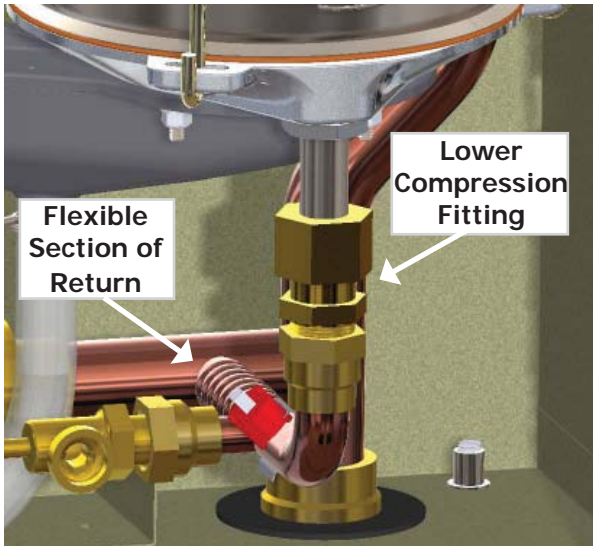
**Figure 4 - Heat Exchanger**



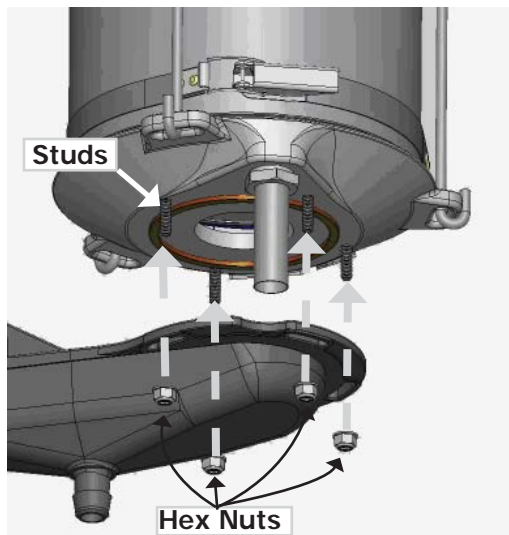
**Figure 5 - Condensate Collector**



**Figure 6 - Flexible Section of Return**



**Figure 7 - Push Upward onto Studs**



**Installation of new heat exchanger:**

<b>NOTICE</b>
Install heat exchanger with condensate collector removed.

1. Remove 90° elbow of compression fitting from top of heat exchanger and straight compression fitting from bottom and discard. See Figure 4.
2. Insert heat exchanger into boiler. Burner is keyed to heat exchanger. "U" shaped notch on burner flange must be aligned with boss on heat exchanger. Attach compression nut to existing 90° compression fitting.
3. Secure heat exchanger with provided replacement upper and lower buckle-clamp straps.
4. Carefully engage top and bottom compression nuts, ensuring not to cross-thread.
5. Hand tighten both top and bottom compression nuts. Use marker to mark reference line on top and bottom compression nuts and fittings. Tighten additional 1/3 turn beyond handtight using a crescent wrench and suitable pipe wrench to counter hold.
6. Apply thin film of silicone to recess in condensate collector, press new O-ring into recess. See Figure 8.
7. Place hose and hose clamps to Condensate Collector. Do not tighten hose clamps. See Figure 5.
8. Position condensate collector under heat exchanger and push upward onto studs while engaging hose onto flue pipe. See Figures 5 & 7.
9. Install (4) 1/4-20 hex nuts onto studs and tighten. **DO NOT OVERTIGHTEN.** See Figure 4.
10. Ensure flue pipe is fully seated into hose and tighten both clamps. See Figure 5.
11. Attach wire harness connector to vent temperature sensor. Attach negative pressure switch hose (if present) to barb fitting collector and secure with clamp.
12. Place air/fuel inlet gasket to blower/air inlet assembly. Place assembly onto heat exchanger studs. Secure with (4) nuts. Verify gasket does not shift. See Figure 3. Do not overtighten.
13. Re-attach ground wire to right stud of flame sensor. Install (2) 8-32 nuts and tighten. **DO NOT OVERTIGHTEN.** 5ft-lbs.
14. Install (2) igniter nuts and tighten. **DO NOT OVERTIGHTEN.** 5ft-lbs.
15. Attach igniter cable to igniter.
16. Attach flame rod lead, igniter lead, two (2) wire harness connectors on blower motor, gas valve connector.
17. Attach wire harness on return water temperature sensor by boiler drain.
18. Fill condensate trap with water, reattach condensate trap tube onto condensate collector and clamp.

19. Attach pressure hose from air switch to barb fitting on air inlet and clamp, if present.
20. Attach flexible gas line to gas shutoff valve.

**NOTICE**

Flexible gas line is flare connection, no pipe sealant necessary.

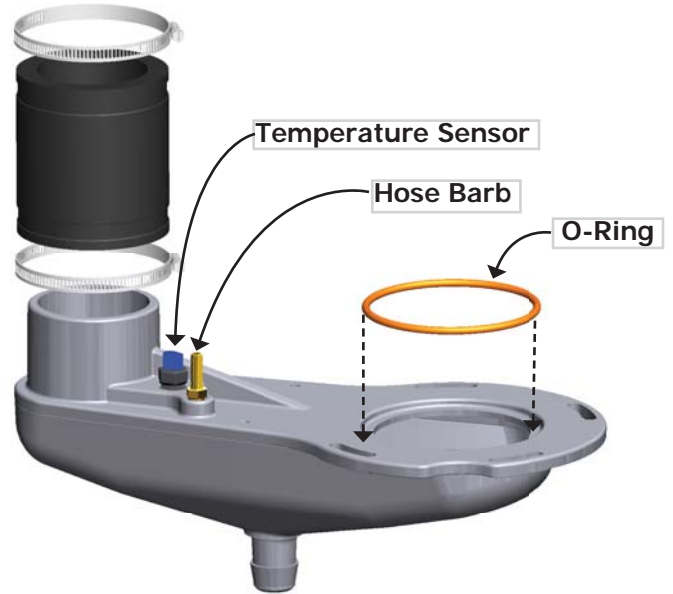
21. Ensure boiler drain is closed, slowly open isolation valves to refill boiler. Check for leaks. Wait for air to finish bleeding.
22. Replace control panel, angle into boiler, align tab with slots in jacket and pull into position.
23. Follow "Startup Procedure" in boiler's Installation, Operation and Maintenance Manual to restore and verify operation.

**NOTICE**

Verify proper operation after servicing.

24. Install Jacket.

**Figure 8 - O-Ring Placement**



**PARTS LIST**

<b>ECR97 075 Heat Exchanger Kit #550002196</b>		
<b>DESCRIPTION</b>	<b>PART #</b>	<b>QTY</b>
Heat Exchanger Module (includes: Burner Kit, Igniter, Flame Rod)	-	1
Fitting Compression, Straight 20MM, tube x 3/4 NPT	-	1
Fitting, Compression 90°, 20 mm tube x 3/4 NPT	-	1
O-Ring, #234, Silicone	240008261	1
Gasket, Air Fuel Inlet	240008251	1
Nut, 1/4-20	14695810	8
Locking Straps	-	2
Instructions	240008598	1
<b>ECR97 100 Heat Exchanger Kit #550002197</b>		
Heat Exchanger Module (includes: Burner Kit, Igniter, Flame Rod)	-	1
Fitting Compression, Straight 20MM, tube x 3/4 NPT	-	1
Fitting Assembly, Compression 90°, 20 mm tube x 3/4 NPT	-	1
O-Ring, #234, Silicone	240008261	1
Gasket, Air Fuel Inlet	240008251	1
Nut, 1/4-20	14695810	8
Locking Straps	-	2
Instructions	240008598	1